ABSTRACT OF THE DISCLOSURE

An orthogonal frequency division multiple access (OFDMA) scheme is used in a satellite environment to reduce narrowband interference, impulse noise, and signal degradation. The symbol timing of each of the satellite network's multiple terminals may be synchronized, and their frequency separation chosen to obtain near orthogonality condition at the reception, between the wanted demodulated channel, and the transmissions on neighbor channels. The establishment of symbol synchronization between various remote terminals may utilize a central clock which may be recovered from a reference downstream channel from one or more satellites; or where two or more satellites are utilized, the satellites may coordinate to provide a single reference clock to the remote user terminals. The terminals may be provided with additional satellite location information relating to slight movement of the satellites around a nominal location so that the timing of transmissions may be corrected based on a tracking algorithm for detecting slight movement of the satellites. The tracking algorithm may be accomplished with individual timing correction to each of the remote terminal's transmissions. A central hub may enforce global timing by utilizing an individual timing correction loop over the network, and enforce global timing synchronization by sending frequent individual timing correction requests and receiving acknowledgements.